

**AMENDMENTS TO THE DRAWINGS**

The attached sheet(s) of drawings includes changes to FIGS. 1 and 2.

Attachment:        Replacement sheets  
                         Annotated sheets showing changes

### **REMARKS**

Claims 1-4, 6, 7, 9, 10, 14, 16, 17, 20, 21, 23, 29, 30, 35, 36, 38, 39 and 40 are amended. Claims 5, 8, 11-13, 25-28, 41 and 43-66 are canceled. Claims 67-72 are newly added without adding new matter. Claims 1-4, 6, 7, 9, 10, 14-24, 29-40, 42 and 67-72 are pending in the present application. Applicant notes with appreciation the Examiner's acknowledgment that claim 41 contains allowable subject matter.

Figures 1 and 2 stand objected to as failing to comply with 37 CFR 1.84(p)(4) and (5). Figures 1 and 2 have been revised to indicate that they are prior art and Figure 2 has been revised to re-label the row select transistor with reference character "36." Applicant submits that the figures are in compliance with 37 CFR 1.84. In light of this revision, Applicant respectfully requests that the objection to the figures be withdrawn.

Claims 10, 12 and 14 stand objected to because of informalities. Claims 10 and 12 are amended to recite "said *isolating* region" (emphasis added). Claim 14 is amended to recite the "pixel cell of claim 6" (emphasis added). In light of these amendments, Applicant believes the informalities have been corrected and respectfully requests that the objection to the claims be withdrawn.

Claims 35, 36 and 38 stand rejected under 35 U.S.C. § 112, second paragraph. Applicant respectfully traverses this rejection.

Claim 35 is amended to recite "said accumulation region of said photodiode." In light of this amendment, Applicant submits that claim 35 and claim 36 depending therefrom are definite.

Claim 38 is amended to recite an imager device "wherein the filling layer is selected from a group consisting of silicon dioxide, silicon nitride, oxide-nitride, nitride-oxide, and oxide-nitride-oxide." Applicant submits that, as amended, claim 38 is not vague and indefinite. Accordingly, Applicant respectfully requests that the 35 U.S.C. § 112, second paragraph, rejection of claims 35, 36 and 38 be withdrawn.

Claims 1-3, 39, 40 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,570,222 (“Nozaki”) in view of U.S. Patent Application Publication No. 2002/011731 (“Kim”). Applicant respectfully traverses this rejection.

Claim 1, as amended, recites a pixel comprising, *inter alia*, “a photosensor in said substrate, said photosensor including a first conductivity area below a surface of said substrate and a second conductivity area at least between said first conductivity area and said substrate surface” and “a first material layer having an excess charge sufficient to create an electric field that affects said second conductivity area, wherein *said first material layer is located above said surface of said substrate, at least over said photosensor and comprises a material selected from the group consisting of aluminum oxide, aluminum nitride, and aluminum silicates.*” Emphasis added.

Claim 39, as amended, recites, *inter alia*, a “pixel cell comprising a photodiode in a substrate” and “*a first layer of aluminum oxide on said substrate over said photodiode.*” Emphasis added. As noted in paragraph 13 of the Office Action, the prior art of record does not disclose providing aluminum oxide over the substrate surface. Likewise, the prior art of record is silent on providing a layer of aluminum nitride or aluminum silicates on the surface of the substrate over the photosensor. Thus, the references do not teach or suggest a layer comprising “a material selected from the group consisting of aluminum oxide, aluminum nitride, and aluminum silicates,” as recited in independent claim 1, or “a first layer of aluminum oxide,” as recited in independent claim 39.

Since the references do not teach or suggest all the limitations of claims 1 and 39, claims 1 and 39 and claims 2, 3, 40 and 42 depending therefrom are patentable over the references. Accordingly, Applicant respectfully requests that the 35 U.S.C. § 103(a) rejection be withdrawn.

Claims 30-34, 37 and 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Figure 1 Prior Art in view of Nozaki and further in view of Kim. Applicant respectfully traverses this rejection.

Claim 30, as amended, recites, *inter alia*, an imager device comprising “a photodiode within said substrate” and “a surface layer on a surface of said substrate located over said photodiode, *comprising a layer of high-k dielectric material selected from a group consisting of aluminum oxide, aluminum nitride, and aluminum silicates.*” Emphasis added. As set forth above with respect to claims 1 and 39, the prior art of record does not disclose providing aluminum oxide, aluminum nitride, or aluminum silicates over the substrate surface. Likewise, the prior art of record is silent on providing a layer of material “selected from a group consisting of aluminum oxide, aluminum nitride, and aluminum silicates,” as recited in claim 30. Since the references do not teach or suggest all the limitations of claims 30, claim 30 and claims 31-34, 37 and 38 depending therefrom are patentable over the references. Accordingly, Applicant respectfully requests that the 35 U.S.C. § 103(a) rejection be withdrawn.

Claims 1-3, 5, 9, 10, 14, 16-23, 29, 30, and 34-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over (“Mouli et al.”) as being obvious over U.S. Patent Application Publication No. 2005/0042793 in view of Kim. Applicant respectfully traverses this rejection.

As provided by 35 U.S.C. § 103(c), Mouli et al. does not preclude patentability under 35 U.S.C. § 103(a). At the outset, Mouli et al. is a divisional of application no. 10/602,721, filed June 25, 2003. The present application and Mouli et al. were, at the time the present invention was made, subject to an obligation of assignment to the same entity: Micron Technology, Inc. The assignment for the present application was recorded in the PTO on January 12, 2004, on Reel 014886, Frame 0224. The Assignee of application no. 10/602,721 (Mouli et al.) was recorded on June 25, 2003 on Reel 014229, Frame 0284. Therefore, 35 U.S.C. § 103(c) applies and Applicants respectfully requests the withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1-3, 5, 9, 10, 14, 16-23, 29, 30, and 34-36.

Claims 1-3, 5, 14-17, 23 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mouli et al. in view of U.S. Patent No. 6,046,487 (“Benedict”). Applicant respectfully traverses this rejection.

As discussed above, Mouli et al. does not preclude patentability under 35 U.S.C. § 103(a). Accordingly, Applicant respectfully requests the withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1-3, 5, 14-17, 23 and 24.

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

By 

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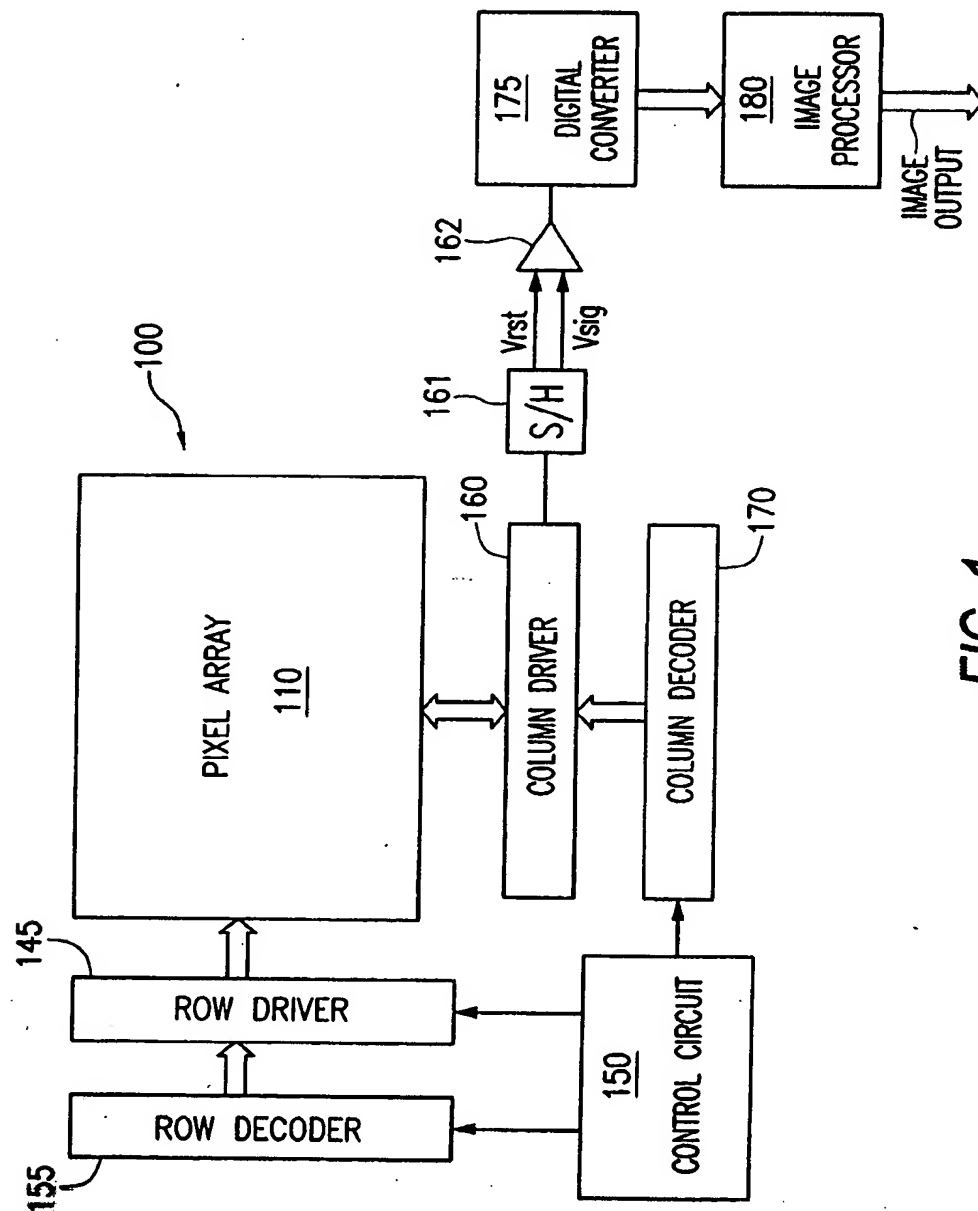
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ANNOTATED SHEET SHOWING CHANGE



**FIG. 1**

(PRIOR ART)

ANNOTATED SHEET SHOWING CHANGE

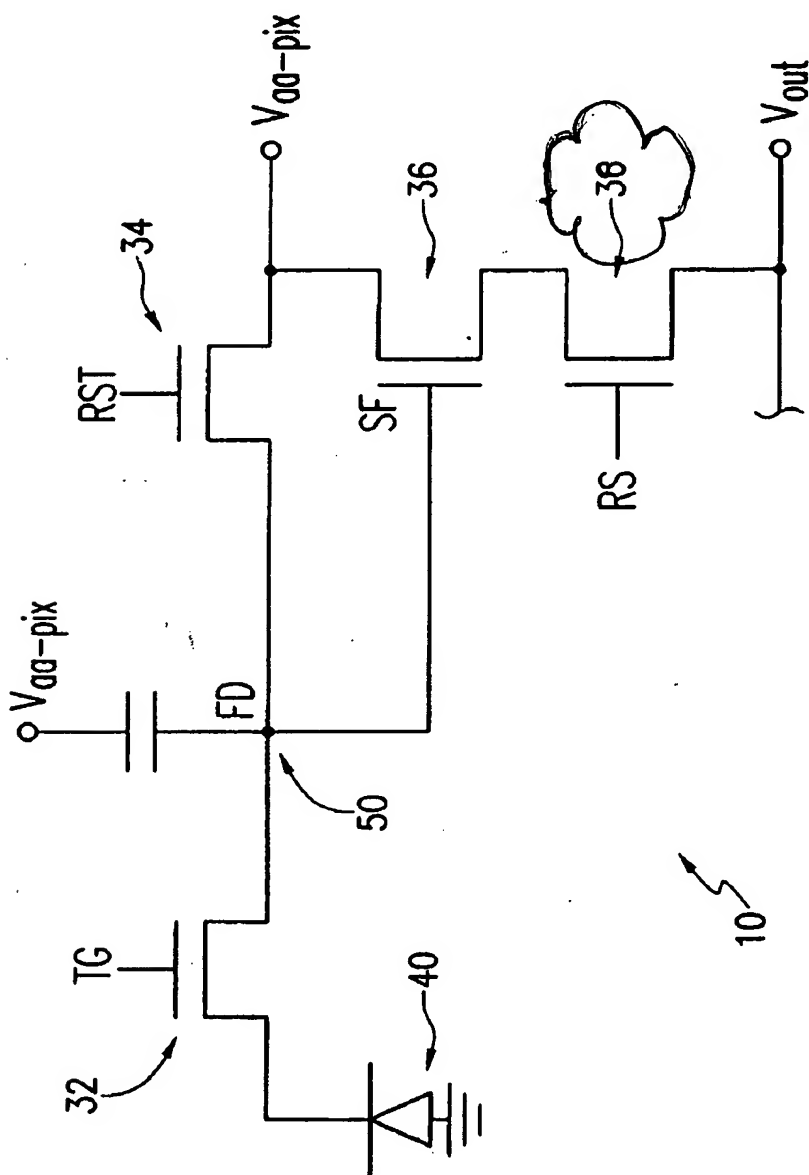


FIG. 2

(PRIOR ART)